THE VETERINARY RECORD

A Weekly Journal for the Profession.

No. 624. JUNE 23, 1900. Vol. XII.

The International Congress of Hygiene.

This important Congress meets in Paris on August 10th and continues its sittings till the 17th. Section II., of which M. Chauveau is president, and M. Bordas, secretary, is devoted to the hygiene of food. Meat inspection will be discussed in this division, and a report will be considered on the use of substances added to foods as preservatives.

The National Veterinary Association.

The Secretary requests us to say that he would be glad to receive the papers from the writers by July 1st so that they may be printed and issued to the members at the earliest possible date. The meeting in Dublin commences on Tuesday, August 21st, and promises to be a memorable one. After the scientific business is over more than one excursion to some of the most beautiful spots in Ireland can be indulged in. Killarney is specially arranged for, and the Dublin Horse Show can be seen by those who remain the few days necessary. Such an opportunity so seldom occurs of combining pleasure with veterinary science on a large scale that it is expected the members of the Association will take advantage of it and make the meeting the largest we have yet had.

Professor McCall on the Curative Action of Mallein.

We reprint a very interesting report on some experiments made by Professor McCall in Glasgow. The tabulated statement in the report gives the temperatures following repeated mallein tests.

Some horses did not react to a second injection whilst others reacted to a third and fourth. One horse we notice (No. 8291) reacted to a first injection on March 2nd, again on May 11th, on June 22nd, and on July 27th, but failed to react to a further test on August 17th. Had this horse not been further tested the inference might have been drawn that he had attained immunity or been cured. But on Oct. 5th another injection of mallein sent the temperature up to 104·4. In the detailed experiments—one marked Experiment No. II.—the horse reacted on March 9th. 1899. on May 11th, and on June 22nd, but failed to react to tests on July 27th, August 17th and September 14th. For eight months he remained at work showing no sign of disease. On March 19th, 1900, he was again injected with mallein but gave no reaction. Three days later he was slaughtered and careful examination made. Nodules (caseated or calcareous) were found in the lungs but bacteriological investigation showed that no active infection remained. The Professor points out that his experimental work is not complete and that he is therefore not yet inclined to draw any practical inferences.

INTERIM REPORT ON THE USE OF MALLEIN IN THE TREATMENT OF GLANDERS.

By Prof. Jas. M'Call, Glasgow.

(Extract from Report sent to the Executive Committee of the Local Authority of Glasgow.)

Having received authority in the month of March last to conduct a series of experiments with the view of demonstrating the utility of mallein in the treatment of glanders in horses, I now beg to report briefly on the work which has been undertaken, and the results obtained until the present time.

For the purposes of observation and experiment I arranged with Mr. Duncan, the Manager of the Glasgow Tramway and Omnibus Company, that I should have access to 27 horses which were stabled and worked by themselves from Crownpoint, and had been there and under observation for more than 12 months.

Eighteen of the 27 horses referred to were drafted out of the stud at the dates given, in consequence of having reacted to mallein, and been declared by the mallein test affected with glanders. The remaining nine horses were added to the number, after being tested with mallein and failing to react, the object being to see if these nine horses would contract glanders by being housed and worked with the animals which had been declared glandered by the mallein test.

I now submit a copy of the tabulated statement of horses tested with mallein at Crownpoint Stables, and results :—(*see next page.*)

All the horses referred to have been at work regularly, and with the exception of two animals (viz., 10135 and 9283, which I purchased for experimental purposes) are still at work, and have never exhibited a single clinical symptom of being glandered ; and this applies equally to the horses which never reacted and those which reacted for months.

It does seem strange that one dose of mallein should remove a horse from the category of a glandered to that of a non-glandered animal, but as some animals are not removed from this category until several injections have been made and a long period of time has elapsed this, in my opinion, lends force to the view that "mallein," like many other curative agents, acts not only according to the quantity administered, but also according to the condition of the patient and the stage of the disease. But, and while it is the fact that these 27 horses have ceased to react to mallein and present no visible symptoms of be-

TABULATED STATEMENT OF HORSES TESTED WITH MALLEIN AT CROWNPOINT STABLES, AND RESULTS.

Date.	No.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date	Temp.	Date.	Temp.
1899														
Feb. 9	10135	104·4	May 11	104·4	June 22	104·1	July 27	102·3	Aug. 17	100·1	Sept 14	101 2		
„ 9	9376	105	„ 11	104·3	„ 22	105	„ 27	104	„ 17	102·1	„ 14	102·4	Oct. 5	101·1
„ 16	9691	105·1	„ 11	103·1	„ 22	104	„ 27	102·3	„ 17	100·2	„ 14	100·2		
„ 16	8453	102·3												
„ 23	9367	103·2	„ 11	101·1	„ 29	101·1	Aug. 10	102·1	Sept. 14	100·3				
„ 23	9951	104·4	„ 11	103·2	„ 22	105·1	July 27	103·3	Aug. 17	100·2	„ 14	102	„ 5	100·4
Mar. 2	10265	103·3	„ 11	103·1	„ 22	102	Aug. 3	100·4						
„ 2	8291	104·4	„ 11	103·2	„ 22	104·1	July 27	104	„ 17	100·3	„ 14	100·4	„ 5	104·4
„ 9	9283	105	„ 11	104·3	„ 22	104	„ 27	102	„ 17	100·2	„ 14	101·1		
„ 9	10110	105	„ 11	102·4	„ 22	102	Aug. 3	102·4	Sept 14	100·2				
„ 9	1911	105	„ 11	103	„ 22	101·2	„ 3	100·1						
„ 23	9662	102	„ 11	101·2	„ 29	101·4	„ 10	100·4						
April 6	9270	102·2	„ 11	101·2	„ 29	100·2	„ 10	100·2						
„ 6	2474	102·4	„ 11	101·2	„ 29	102·1	„ 10	101·2						
„ 6	9644	102·1	„ 11	100·2	„ 29	100·2	„ 10	100·3						
„ 6	10512	104	„ 11	104	„ 22	105·1	July 27	104	Aug. 17	100·3	„ 14	101·3	„ 5	100·4
„ 20	76	101·4	„ 11	100·3	„ 29	100·3	Aug. 10	100·4						
„ 20	9069	102·2												
„ 27	9750	104	„ 25	104·3	„ 29	100·1	„ 3	102·2	Sept 14	101·3				
„ 27	10458	104	„ 25	102	„ 29	100·4	„ 3	100·1						
„ 27	294	104	„ 25	100·2	„ 29	100·1	„ 10	101						
May 4	139A	103												
„ 4	2434	103	„ 25	100·3	„ 29	100·3	„ 3	100·2						
„ 11	10516	105	„ 22	105·1	„ 27	105	„ 17	101·3	„ 14	101·3	Oct. 5	102		
„ 11	8154	105·3	„ 22	105·1	„ 27	104	„ 17	102·3	„ 14	102	„ 5	101·1		
„ 25	10306	102·3												
„ 25	10530	102·1												

The chart explains itself, and from it many interesting facts may be adduced. Some horses to the second inoculation of mallein did not react, while others reacted to a third and fourth, and in some instances the animals remained glandered by the test for a period of six months, and then ceased to react.

ing glandered animals, it does not follow that they are cured of the disease, and I shall now proceed, under the head "Experiments," to deal with that aspect of the subject.

EXPERIMENT No. I.

Brown mare from Maryhill, received 14th March, 1900.

This mare is visibly affected with glanders, but has never been subjected to the mallein test. She has been in the service for seven years, and consequently is well worn out. There are farcy buds on both legs above the hocks, and at the back of the hips, and the sub-maxillary glands are indurated, but she has no discharge from her nostrils, and the farcy buds have only appeared within the last three days.

Her temperature was taken for four days, and was as follows.—

15th March,	Morning,	$100\frac{2}{5}$	Evening,	$100\frac{2}{5}$
16th „	„	$100\frac{4}{5}$	„	$101\frac{3}{5}$
17th „	„	$101\frac{2}{5}$	„	102
18th „	„	$101\frac{1}{5}$	„	$101\frac{4}{5}$

She was inoculated subcutaneously on the left side of the neck at 11 p.m. on 18th March with $2\frac{1}{2}$ c.c.= 45 minims of mallein diluée, as prepared and supplied by the Pasteur Institute. Her temperature taken on the 8th, 10th, 12th, and 14th hours after inoculation was—7 a.m., 101; 9 a.m., $102\frac{2}{5}$; 11 a.m., $103\frac{2}{5}$; 1 p.m. $103\frac{2}{5}$.

There was a fairly extensive local swelling at the point of inoculation, and consequently the animal was considered to have reacted to the mallein test, and thereby declared glandered.

She was kept at the Sanatorium under surveillance until 31st March (a fortnight), and during this time she ate well. and did not lose much in bodily condition. On 31st March she was slaughtered, and a minute and careful post-mortem examination made.

Naked Eye.—The lungs showed a few nodules of small size in various stages of development (none, however, being in the early or hæmorrhagic stage), and the spleen showed one nodule. The nasal cartilage, trachea, liver, kidneys, &c., showed nothing abnormal. The skin was affected with farcy, four buds being found about the flanks and above the hocks.

Plates.—Plate cultures were made glycerine agar-agar, but the results were negative as regards finding the bacillus mallei.

Microscope.—Slides, stained and unstained, were made and examined, but they showed only cocci, and none of the bacilli of glanders.

This case demonstrates that an animal clinically affected with glanders responds to the mallein test, and that the mallein test is invaluable, and should

always be conjoined with plate cultivations and microscopic examinations, seeing these latter methods may fail in detecting (as in this case) the presence of the bacillus mallei in the infinitesimally small portion of tissue which can be dealt with.

EXPERIMENT No. II.

Dark brown horse, No. 9283, received at the Sanatorium on 15th March, 1900.

This is the horse, which, by a reference to the chart, will be found to have, on 9th March, 1899, when inoculated with mallein, registered a temperature of 105°, in May 104·3°, in June 104°, in July 102°, in August 100·2°, and in September 101·1°. The position of this horse then is, that from March 9th till after the 22nd June, or, say, three months, he remained a declared glandered horse by the mallein test, but by the same test he had recovered on 27th July, and had remained so for the past eight months. On his receipt then, on 15th March, we prepared him for being again subjected to the mallein test, and accordingly his temperature was taken morning and evening for four days, with the following results:—

15th March	Morning,	$100\frac{2}{5}$	Evening,	$100\frac{3}{5}$
16th ,,	,,	$100\frac{3}{5}$	,,	$100\frac{4}{5}$
17th ,,	,,	$100\frac{3}{5}$	,,	$100\frac{3}{5}$
18th ,,	,,	101	,,	$100\frac{2}{5}$

The temperature being normal, and the animal otherwise a fit subject, on 18th March he was inoculated subcutaneously in the left side of the neck at 11 p.m., and his temperature taken eight, ten, twelve, and fourteen hours thereafter:—

March 19th—7 a.m., $100\frac{3}{5}$; 9 a.m., $101\frac{3}{5}$; 11 a.m. $101\frac{2}{5}$; 1 p.m., $100\frac{3}{5}$.

The local reaction or swelling of the inoculated part was very slight, and no lameness nor constitutional disturbance of any kind was noticeable. He was, therefore, regarded as having passed the test and free of glanders.

On 22nd March he was chloroformed, and bled to death in the dissecting-room of the College, and a careful post-mortem examination made. The post-mortem yielded five nodules:—

Three nodules from the lung (caseated and non-active looking).

One nodule from the lung (calcareous).

One nodule from the inguinal lymphatic glands (caseous).

The trachea, liver, spleen, nasal cartilage, skin, and other parts of the body appeared healthy. The five nodules were cut out and carefully crushed, then mixed together in a sterilised vessel.

Plate cultures in glycerine agar-agar were made, and yielded colonies in abundance, but all negative as regards bacillus mallei.

A yellow and brown guinea-pig was also inoculated, 23rd March, subcutaneously (in a pouch made in the abdominal region between the skin and cell tissues) with $1\frac{1}{4}$ c.c. = 23 minims of the liquid from the mixed and broken down nodules.

A donkey (procured for this purpose, and previously inoculated with mallein and passed as free from glanders) was also, 23rd March, inoculated subcutaneously in the left side of the neck with $4\frac{1}{2}$ c.c. = 81 minims of the same liquid, and also a few solid shreds of the nodule tissue.

The guinea-pig was closely observed, but nothing either local or constitutional transpired as a result of inoculation. The wound healed without suppuration, and the guinea-pig remained in perfect health for a month, *i.e.*, till 23rd April. On this date the guinea-pigs (four in number) all received a quantity of green food. They became affected with diarrhœa, and all died within ten days. The inoculated guinea-pig died on 28th April, and a post-mortem showed muco-enteritis to have been the cause of death. There were no glanders nodules to be felt or seen in any of the viscera.

The donkey (two days after) at the point of inoculation on the neck developed a hard swelling about the size of a bean. It was not painful, and there were no signs of inflammation in or discharge from the part, and she was feeding well. It was supposed that the swelling was due to injury sustained to the skin while puncturing it, the skin being so extremely tough and thick, great pressure had to be used to get the needle to pierce it. The swelling gradually increased till it obtained the size of a walnut, and ultimately formed an abscess. On 6th April the abscess was lanced and its contents received into a sterilised vessel. To the naked eye the contents of the abscess looked like partially coagulated and creamy pus. On microscopic examination and cultures nothing but cocci were obtained.

On 14th May, the same donkey was again inoculated at 11 p.m. with 35 minims of mallein, and temperatures taken every two hours after, from the 8th to the 14th hours—May 15th, 7 a.m., $99\frac{1}{5}$; 9 am., $99\frac{3}{5}$; 11 a.m., $99\frac{2}{5}$; 1 p.m., $99\frac{2}{5}$.

Local reaction was so slight as to be hardly visible, and no constitutional disturbance was exhibited.

The donkey was killed on 22nd May, and a careful post-mortem made, but no glanders nodules or disease of any kind was found to exist.

The results of the experiments in connection with this horse, No. 9283, proved to a demonstration that he was for a length of time a glandered horse, but for a period of eight months prior to his being slaughtered he had recovered from the disease and was a sound animal.

EXPERIMENT No. III.

Bay mare, No. 10135, received on March 15th, 1900, from Crownpoint. This is the mare which by a reference to the chart will be found to have on 9th February, 1899, when inoculated with mallein, registered a temperature of 104·4; in May, 104·4; in June. 104·1; in July, 102·3; in August, 100·1. in September 101·2

The position of this mare is much similar to that of the horse in the previous experiment, viz.:—for a period of four months a glandered horse by the mallein test, and for eight months subsequently recovered from the disease.

The temperature was taken for four days after arrival, and was as follows:—

15th March,	Morning,	100·3	Evening,	100·3
16th ,,	,,	100·2	,,	100
17th ,,	,,	100·3	,,	100·3
18th ,,	,,	100·3	,,	101·2

She was inoculated at 11 p.m. on the 18th, subcutaneously on the left side of the neck with 2½ c.c.= 46 minims mallein diluée, and her temperature taken on 8th, 10th, 12th, and 14th hours after inoculation was:—

March 19th—7 a.m., 100; 9 a.m., 100·3; 11 a.m., 100·2; 1 p.m., 100·1.

Local reaction was slight, and constitutional disturbance unnoticeable. She fed well, and accordingly she was declared to have again passed the mallein test.

It was now determined to inoculate the animal with material obtained from a glandered horse, and which was done, the object in view being to see what additional power, if any, the animal possessed, or might be supposed to possess (through the frequent inoculations of mallein to which it had been subjected), in resisting the invasion of the glanders organism, but the animal's health having broken down, it was decided to have a fresh subject, and to use for inoculation purposes a pure culture of the glanders bacillus; and, having secured a pure culture, I am now on the eve of prosecuting that line of experiment.

In submitting this report, I desire it to be distinctly understood that the experimental work which I had set myself to do has not been completed, and that it will take some time to complete, and until it has been completed I do not feel inclined to suggest to the Local Authority that any alteration be made in their line of procedure in dealing with outbreaks of this disease.

HORNY GROWTHS ON COW.

I enclose a horny growth taken from a cow's back. My attention was called to the cow casually while attending another in the same place. The growths extended along the greater part of the back bone and down the left flank. On the back are some large ones, the enclosed piece was broken from one about four inches long, and I had to break it with strong pincers, it being firmly attached to the skin at the base. They were in all shapes and sizes, some rounded and standing up straight or curled round. The ones on the side are small, and I tried to rub in a blister there to see what effect it would have, but the hard growths were so severe on the hand that I could not get it done well.

The only history of the case I could get was that the growths started after the animal had an illness when about a yearling.

I never met with a case like it before, so think it may possibly have some interest to you.—Yours truly,

J. R. R. Hamilton.

Market Square, Lisburn.
April 9th.

[The specimen sent is about two-thirds of an inch in width by two inches long, and consists of longitudinal strong horn fibres such as are sometimes found growing from the horse's coronet after an injury.—Ed.]

RUPTURE OF RECTUM.

A 15 hands, six-year old farm mare was taken for service to a heavy draught sire. Service was supposed to have been effected properly, but mare was observed to strain and pass fæces and urine immediately.

A short time after returning to the stable she was observed to be in violent pain, showing all the symptoms of acute colic. It was then I was sent for and when I arrived she was almost in a state of collapse. Pulse almost imperceptible; temperature below normal, the body covered with cold sweat, drooping head, and legs spread out. There were feeble attempts to strain and pass urine and fæces. A rectal examination revealed a large mass of fæces impacted into the left side of the gut, and on removing this and extending the arm a large rupture of the superior portion (in fact the rupture seemed to have severed the gut right through) of the rectum. Large quantity of fæces fell into the abdomen, the floor of which could be easily felt. Morphia was injected to allay pain, and three hours later she fell down and died in violent agony.

There can be little doubt the stallion's penis entered the rectum instead of the vagina, for the latter did not show any signs of a recent copulation, and ruptured the rectum.

What tended towards the accident was the disparity in size of the animals. Unfortunately a mistake in the disposal of the carcase prevented a post-mortem.

R. G.

ABSTRACTS FROM FOREIGN JOURNALS.

Critical Remarks on Milk Fever and its Treatment.—By Veterinary Surgeon Witt, of Sonderburg.

Schmidt, of Kolding, has undoubtedly hit the right nail on the head in introducing, initiating and advocating the treatment of milk fever by means of potassium iodide injections into the udder.

In this article although bad success attended the treatment in some of the cases yet these cannot bring discredit on a treatment which has been so successful in most cases.

Of 47 cases which I treated 50 recovered and most of them in the course of from 6 to 12 hours. One cow was necessarily slaughtered. Of the other six fatal cases three were already so far affected (the illness being evident 12 to 36 hours) before I saw them that I recommended slaughter, but the owner had heard of the wonderful success attending the injections and had so much faith in them that he insisted on me treating the animals and besides their slaughter value was small.

On the success of Schmidt's treatment I have no doubts whatever.

With Schmidt's theory that the iodine from the potassium iodide checks glandular secretion and

hinders the formation of a toxic material I cannot agree.

In 1898 Herr Schmidt noticed that an injection of of lysol into the udder was equally efficacious.

Dr. Aronsohn has proved in 14 cases that pure water or physiological salt solution has an equally good effect, and I can confirm this in one case in which I used ordinary water boiled.

May not these published cases of cures without potassium iodide go to to prove that the attributing of the cure to the potassium iodide is not correct. Schmidt says that the admission of atmospheric air into the udder along with the injection is useful and necessary. The freely liberated iodine of the iodide ofpotassium cannot be the effective agent if indifferent solutions without iodine have the same effect.

On this point I am at one with Dr. Aronsohn, but not however with his theory on arterial anæmia of the brain in consequence of a rush of blood to the udder. Several thonghts occur to me to controvert this brain anæmia theory.

1. Why should anæmia of the brain occur so easily in the best and strongest cows? If the rush of blood to the udder is stronger than in poor cows and bad milkers yet I hold that the greater amount of blood in the system of the best and strongest cows will soon equalise this.

2. If there really is a great flow of blood to the udder in milk fever how are we to account for the fact (*a*) in such a great percentage of cases in spite of the great blood pressure the udder remains small and flabby, smaller and flabbier than one would expect to find it in the best milch cows; that (*b*) the secretion of milk wholly or almost entirely ceases. I can confirm this in my cases. In 70 to 80 per cent. of the cases treated by me the milk flow ceased entirely and in all of them there was a decrease in the milk supply. I am of opinion that proportionately there is a small flow of blood to the udder. If there was a great rush of blood one would expect swelling of the udder and increased milk secretion.

3. Herr Schmidt and Dr. Aronsohn both seek to hinder the function of the milk gland and stop the flow of milk. I might indeed ask, on what ground they found their treatment thereon. In my practice I generally notice that if within 12 to 36 hours after calving the milk secretion in a good cow ceases, then the owner with justice fears the onset of milk fever, and if some hours after injection the milk supply returns again the danger is as a rule past (at least it is so here in Alsace, whether it is otherwise in Denmark and Mecklenburg I am not able to judge. Before the cow makes a good recovery it is necessary that the flow of milk should return again. If Herr Schmidt and Dr. Aronsohn by injections into the udder do not increase the secretion of milk but diminish it, how do they reconcile this with this fact.

4. Dr. Aronsohn seeks by the injection to counteract the strong blood pressure to the udder and so the arterial anæmia of the brain. Will the injection of a quarter to one-eighth of a litre of fluid into a fourth part of the udder perceptibly diminish the blood pressure in the roomy udder of a good milk cow? In arterial anæmia of the brain would not the heart mechanism work better and surer, which is not at all the case in milk fever.

Dr. Aronsohn against the theory of auto-intoxication quotes the oft times quick recovery, and the probable harmlessness of the flesh of a milk fever cow.

I will pass over the latter point, and against the first will say that we notice quick recoveries in other illnesses caused by auto-intoxication, that most recoveries in milk fever are slow, and that in a quick recovery we must suppose that there has not been much absorption of toxic material. I hold that the theory of auto-intoxication is not yet refuted.

With a seared umbilical cord, nourishment ceases going to the fœtus, and there will be a storing up of such nourishment in the body of the mother. If milk secretion now sets in this surplus of nourishment will be diverted thereto.

Stop this milk secretion, however, or let the greater part of it cease in good milking animals, then that surplus nourishment remains in the body and the necessary condition for the occurrence of auto-intoxication is at once present. Bearing this in mind we can conceive how the infusion of potassium iodide or simple water into the udder bring about a cure. I cannot accept that a chemical agent generally has the effect of exerting counter pressure.

Recovery then may be brought about by the injected fluid taking up the poison present in the udder and ridding the body of it—in this case it behoves analysts to ascertain the nature of the poisor present —or that the injections by local irritation excite the parenchyma of the udder to renewed and increased activity, and that this effects the clearing away of the excess of nourishment from the system, and with it also goes the preliminary condition necessary for auto-intoxication.

I myself incline to the latter view. If we accept this we can understand why at times a timely bleeding, more often a drastic purgative, and especially a considerable reduction in the food supply will check the onset of milk fever.

But above all it must be borne in mind that with the cessation of milk secretion milk fever sets in, and that the illness departs as soon as the activity of the gland begins.—*Berliner Thierärzt Woch.*

G. M.

CANINE AND FELINE SURGERY.

With one or two notable exceptions, veterinary practitioners have not given the same attention to the surgery of the smaller domestic animals that they have bestowed upon the horse and ox. Books on the diseases and accidents of dogs and cats have been written in too popular a style, and the practice of canine and feline surgery has left many operations untouched save by a few specialists. Some excuse for this may have been found in the difficulties surrounding the production of anæsthesia, and some in the want of teaching and the want of text-books experienced by students.

Professor Hobday in his little book "Canine and Feline Surgery," published by Messrs. W. and A. K.

Johnston has supplied a great want in a concise, neat, and clear manner. The author, in his preface modestly says that a belief that students would appreciate such a work was the cause of writing it. We are convinced that it will be of at least equal value to practitioners. There are many ways of performing an operation and we all prefer the best—except those men who have ceased to learn. In this little book will be found the best methods of performing all the operations a veterinary surgeon is likely to adopt in daily practice.

The attack upon veterinary practitioners recently made in *Land and Water* had just a basis of fact in its reference to our frequent neglect of thorough aseptic methods in operations. Students who follow Professor Hobday's directions will be above suspicion, and will soon remove the stigma attached to us by a weekly paper.

The first three chapters are devoted to the preparatory treatment of the patient and of the site of operation; to the methods of securing the animals; and to the administration of anæsthetics. We believe that errors in these matters have deterred veterinarians from operating with success far more than want of surgical dexterity. If a dog is not properly secured, it is unsafe to give it chloroform, and without an anæsthetic no major operation can be undertaken. There was an idea widely prevalent that to chloroform a dog was a very risky proceeding. So it was when the animal was secured by assistants holding him down by pressure on his chest and neck, or when chloroform was given without any rational precaution to mix the vapour with sufficient air. No one has done more to put anæsthesia for the lower animals on a sound basis than Professor Hobday, and no one has shown in practice more scrupulous care in avoiding sepsis.

Canine and feline surgery affords perhaps more scope for operating than any other branch of veterinary practice. There is an immense variety of conditions requiring surgical aid and the patients are easily handled compared with some of the larger domestic animals.

Professor Hobday describes the operations on the different regions and organs concisely and lucidly with the assistance of a number of illustrations. We have much pleasure is strongly recommending the work to every practitioner who includes dogs and cats among his patients, and who desires to know the latest and best surgical methods.

EXTRACTS AND NOTES.

THE GENERAL MEDICAL COUNCIL.

The penal cases which occupied the attention of the General Medical Council at its recent meeting were nine in number and resulted in the removal of no less than five practitioners from the Registers—three from the Medical Register and two from the official roll of the dentists. It is always well to consider the offences for which the grave penalty of removal from the Register is inflicted, for they vary from session to session. We have hitherto been accustomed to regard "covering" as the commonest offence warranting suspension from medical practice. But it is noticeable that this was not the offence alleged against any one of the five practitioners whose names have just been erased. The offences were, respectively, (1) drunkenness, disorderly conduct on one occasion and on another assaulting and beating a female; (2) association with an Anglo-Australian institute which advertised publicly systems of medical treatment, the advertisements being in themselves discreditable to a British registered medical practitioner; (3) systematically seeking to attract professional practice by the issue of public advertisements advertising as a graduate in dental surgery in America without having visited America or undergoing any examination; (4) habitually publishing advertisements as R.D.S.E., thus implying connection with one of the Royal Colleges; and (5) practising a fraud upon a gentleman by making out to him a bill for professional attendance on his wife, the attendance never having been given. We propose to consider some of the circumstances of these cases, though the names of those convicted of unprofessional conduct need not be given.

The offence of drunkenness may not appear to some a professional offence, and they may think it one for which a man is sufficiently punished by the magistrate in a police-court. For a single occasion that view would doubtless generally hold. But it is otherwise when the member of a responsible profession appears more than once in the police-court on such a charge, and especially so if at the end of six months he appears again before the General Medical Council without any obvious improvement in character and without adducing testimony from others to such improvement. It is clear that such a person should be removed from the Register of medical practitioners both for the advantage of the public and the good repute of the profession. Drunkenness is an offence in any man against the rules of the society, but in a medical man it is to be severely condemned, because it may lead to terrible disasters in which the sick are the sufferers. We know the temptations offered by the irregular hours and hard work of practice, especially in country districts. But against these temptations every practitioner should be on his guard In the second case of the sort investigated the Council gave the practitioner time to consider and amend his ways.

In the next three cases the offence consisted in advertising in such a manner as to constitute "infamous conduct in a professional respect." Here again the temptations are obvious—as obvious as those to drunkenness and as vulgar. What is and what is not legitimate or unavoidable publicity must often be a matter of doubt, but we do not think that anyone will accuse the General Medical Council of having acted, as a rule, with harshness. So far from straining to bring home to members of the profession the offence of advertising the tendency of the Council has been to be blind to the *lâches* of regular sinners. The last case, that of the practitioner whose name was erased for making out a bill to a husband for an imaginary medical attendance on his wife, is unique. The offender's counsel argued that this was not infamous conduct in a professional respect because it was not done towards an actual patient or in the actual pursuit of professional work, but the Council took a different view, and it is not likely that its decision will be called in question.

In some respects the most interesting case brought before the General Medical Council was that of the medical man who was summoned for employing an unqualified assistant whom, it was alleged, he permitted to attend on, and administer relief to, patients and carry on practice as if he were duly qualified. The complaint was brought by the Gateshead Medical Association and was supported by the Medical Defence Union. The interest in the case was complicated by the fact that differences existed between the accused and other medical practitioners of his neighbourhood. The very delicate circumstances in which the case against him arose no doubt

made the Council more careful in the exercise of its power, and its caution was wise. It would be a most unfortunate thing if the penal powers of the Council were ever suspected of being exercised in response to professional misunderstandings. The Gateshead Medical Association was well advised in bringing the case before the Council and it is probable that the offence will cease. —*The Lancet.*

THE VALUE OF TUBERCULIN IN DIAGNOSIS AND TREATMENT OF MAN.

By T. McCall Anderson, M.D. Glasgow.

Most of us remember the intense enthusiasm with which Koch's great discovery was greeted and it was then the confident expectation of the public—if not of the profession—that the days of tuberculous disease were numbered. The consequence of such anticipations, as might have been expected, was that this powerful agent was too often employed in a reckless and indiscriminate manner. Patients were dosed with it on wholesale principles, often without due reference to the suitability of their cases, and the amount administered was generally unduly high, or too frequently repeated, thus leading to inevitable disaster. It is not surprising, therefore, that the extravagant laudation with which the discovery of Koch was hailed soon gave place to an equally absurd depreciation of its merits. Indeed, I am probably within the mark when I say that there are very few medical men in this country at the present time who are in the habit of using tuberculin. At all events, I can say that amongst the 40 medical officers attached to my own hospital it is not used by any of them. After a pretty wide experience I see no reason to resile from the opinion which I ventured to express in 1890—that the discovery of tuberculin "marked the commencement of a new era both in diagnosis and therapeutics."

In the recent discussions which have taken place throughout this country on the means to be adopted for the prevention of tuberculosis, one of the points most insisted on was the necessity of preventing the sale of tuberculous meat, and, above all, of the milk of tuberculous cows, and with practical unanimity it was conceded that the injection of tuberculin was a very certain test of the presence or absence of tuberculous disease in animals. How is it, then, that the tuberculin test is confidently relied upon by veterinary surgeons for the diagnosis of tuberculosis in animals, while medical men who applaud the use of it in animals with rare exceptions fail to take advantage of it in human beings when a doubt exists as to the diagnosis? Possibly it may be owing to the belief that though useful in the case of animals it is not to be relied on in the case of man, or that it would be an unsafe procedure in the latter. But I can say that if used with reasonable care it is both efficient and safe in the human subject. I could give many illustrations of its value in diagnosis but two will suffice, the first of which at the same time illustrates its curative power, though not quoted for that purpose.

Case 1. Tuberculin as a diagnostic test.—A servant girl, aged 19 years, was admitted into the Western Infirmary of Glasgow on January 15th, 1898. Her family history was excellent except that one brother, aged four years, was said to have died from tuberculous peritonitis. With regard to the patient's history, two years before admission a small, dark red, almost livid spot appeared on the outside of the left thigh which gradually healed in the centre and spread at the edges; the surface was dry and scaly and there was neither pain nor itching. Shortly afterwards a similar patch appeared below the knee which ran a like course, but it had healed up before admission, a cicatrix, which was brown at the edges, being left. Nine months before I saw her pustules formed in the centre and at the upper part of the first patch, which ended in ulceration. The ulcerated surface continued to discharge a thick yellow pus and undermined the skin, which had a livid tint. The diagnosis lay between hereditary syphilis and tuberculous disease. As I was inclined to think that it was probably tuberculous I determined to test the point with tuberculin. The first injection of tuberculin was given on January 15th, but there was no decided reaction till the third dose of three cubic centimetres of a strength of 1 in 1000 was given on the 20th, which sent up the temperature to 100·4 F., while the fourth (same dose) on the 23rd sent it up nearly to 103, thus leaving no doubt of the tuberculous character of the ulceration. This treatment was therefore continued till the end of February, there having been 21 injections in all (the initial injection being 0·001 cubic centimetre and the largest 0·175 cubic centimetre), the total quantity used being nearly one cubic centimetre of the undiluted tuberculin. The only other treatment was three ounces of cod-liver oil daily, and she was dismissed quite well on March 24th, the whole duration of the treatment being about two months.

Case 2.—On June 2nd, 1899, a lad, aged 11 years, came under my care in the Western Infirmary of Glasgow complaining of weakness and of a swelling of two months' duration on the left side of the neck. His father and mother and nine of a family of 14 were alive, but one of these was suffering from "consumption of the bowels" and one from "decline." The five who died succumbed to chest complications in connexion with whooping-cough. Two months before admission the patient, who had always been pale and delicate, fell off a wall, and immediately thereafter began to complain of pain in the left side of the neck where a distinct swelling made its appearance. He was sick for a time after the fall, but in a few days the pain in the neck disappeared; the swelling, however, remained, although, according to the mother, it varied in size from day to day, and a week before he came to me it rapidly increased in size. The patient, on admission, was emaciated, pale, and anæmic. There was no fever, no œdema, and the urine was normal, but he complained of shortness of breath, palpitation, and pain across the abdomen on exertion, with occasional vertigo. The spleen was slightly enlarged, though its lower edge could not be felt, and the liver extended for an inch below the costal margin in the nipple line. There was slight enlargement of the inguinal, axillary, and submaxillary glands. The left submaxillary glands were greatly enlarged, forming a prominent mass in the left side of the neck, but the individual glands could not be distinguished. This mass was painful, freely moveable, and firm. He was sent to me as a case of lymphadenoma, but I suspected that the disease might be tuberculous and therefore tried tuberculin. The first four injections of ½ cubic centimetre, 1 in 1000, old tuberculin sent the temperature up to 102·2 F., 102·8, 102·6, and 102·4, while a subsequent injection of one cubic centimetre, 1 in 1000, produced a temperature of 104·8. There being, therefore, no doubt as to the nature of the case he was transferred to the wards of one of my surgical colleagues.

It is a well-known fact that while physical signs often indicate with precision the seat of disease there is frequently tuberculous deposit elsewhere unaccompanied by symptoms of any kind and therefore overlooked. But here, again, with the aid of tuberculin we are able to ferret out and to localise unsuspected foci of disease, as in the following case.

Case 3.—A man, aged 28 years, was admitted in the second week of January, 1891. He had had five attacks hæmoptysis within 13 months, occuring at intervals of two or three months, and he had two anal fistulæ of nine months' duration. An examination of the chest showed entire absence of physical signs with the exception of

weakened respiratory murmur at the right base. He was treated with tuberculin ; 13 injections were given in all, the first of 2 cubic centimetres of 1 in 1000 on Jan. 16th and the last, 50 times stronger, on Feb. 17th. Before dismissal on March 13th the following report was made: "He has had no hæmoptysis for six months and *râles which appeared along with much pain at the right base* after second injection gradually disappeared within a fortnight and there are now no physical signs. Both fistulæ have completely healed. There has been great improvement in the general health with an increase in weight of nine and a quarter pounds."

Many other cases of a similar nature might be mentioned. For example, in a case of lupus of the face the injection of tuberculin not only inflamed the face but also lighted up pain, tenderness, and swelling of the right elbow-joint, which, however, disappeared after a few injections; and in a case of phthisis, soon to be referred to, there were no evidences of disease in the right lung, and yet when the treatment was commenced moist râles appeared over an area of the size of a crown-piece near the right nipple, which, however, disappeared when the injections were given a few times. The curative power of tuberculin is well illustrated by the two cases already mentioned, but further proof of its beneficial influence is afforded by the cases which follow, the first two being cases of phthisis which benefitted greatly from the treatment.

Case 4.—A man, aged 44 years, was admitted into the Western Infirmary of Glasgow on Dec. 1st, 1897, on the recommendation of Dr. Service of Mossend. The only flaw in the family history was that one brother died from hæmoptysis at the age of 30 years. He had never been well since an attack of influenza three years before, and two years ago a short hacking cough set in, accompanied by a muco-purulent expectoration, in which he sometimes noticed blood. About this time also he began to lose flesh and during the last two years had lost two stones. For eighteen months he had suffered from night sweats and during the last six had two attacks hæmoptysis. For a few months, too, his strength had failed very much, and lately he had been almost unfit for work. Shortly before admission he was seen after a long interval by Dr. Service who wrote : "When I saw him I was greatly shocked at his appearance ; he had the appearance of a dying man and came, as he said, that I might tell him the worst and how long he had to live." On admission he was found to be pale and emaciated, with no appetite, troubled with night-sweats and with much expectoration, in which tubercle bacilli were found in great abundance by Dr. A. R. Ferguson, but there was no fever. There were no physical signs in the right lung. Over the upper lobe of the left lung in front there were moderate flattening and defective movement, decided dulness, marked increase of vocal fremitus, and slighter of vocal resonance, whilst moist râles with tubular breathing were heard on deep inspiration. Tubular breathing was also detected in the supra-spinous region, and moist râles between the scapula and the spine. At the base there were slight dulness and feeble breathing ; indeed, there was no part of the lung which was altogether free from signs of disease. Dr. Service sent the patient to me with the view of having a course of tuberculin treatment, and although I did not consider the case a very hopeful one I decided to give him a chance with the new tuberculin, the only other treatment being cod-liver oil, up to three ounces per day. The first injection of 1-1000th milligramme was given on Dec. 12th, 1897 ; the largest, two and a half milligrammes, on Feb. 26th, 1898; and the last of one milligramme on April 14th, the total amount used being about 31 milligrammes in 47 injections. From the time the treatment was commenced he improved steadily, more particularly as regards his general condition, and was dismissed at his own request on April 28th when the following report was taken ; "The patient feels in good health ; he can now read with comfort for hours whereas formerly his eyes soon got tired with reading ; his appetite is completely restored ; the night sweats have long disappeared ; his cough and expectoration are almost gone ; and he has gained about 1 st. 6 lb. in weight."

The after history of the case is as follows. The last time I saw him was on July 14th when he visited me at my request. I found that he had not fallen off in any respect and that he had gained 7 lb. since dismissal, making a total gain of 2 st., his weight now being 12 st. 3 lb., which was his normal weight. He also stated that he could now do an ordinary day's work without fatigue. The improvement in the general was more marked than in the local condition. The expectoration showed that bacilli were still present, but in small numbers, and mostly found lying separately. The right lung remained healthy, while the condition of the left was a follows. The flattening, defective movement and dulness in front were not nearly so pronounced and the râles, though still present, were scanty ; while between the scapula and spine they had entirely disappeared, only puerile breathing being heard. The dulness and feeble breathing at the base were hardly perceptible. In a letter which I received lately from Dr. Service he said: "When I saw him last at the beginning of this week he looked better than I have ever known him ; he eats and sleeps well and has hardly any cough. I feel satisfied that, whatever his ultimate fate, he would now have been in his grave had it not been for the treatment which was followed. On my advice he is looking out for a situation abroad."

It will be observed that the tuberculin treatment was not steadily increased, owing partly to a change of assistant during its course and partly to the stock of tuberculin having temporarily run out. The full dose, too, was not reached, two and a half milligrammes being the largest injection instead of the maximum of twenty milligramme, because the patient felt so well as to desire to return home. The improvement, however, was so marked as to show undoubtedly the beneficial effect of the new tuberculin treatment even in pretty advanced cases.

The following case may also be referred to, although it is still under observation.

Case 5.—A young man, aged 17 years, was admitted on August 5th, 1899. The family history was satisfactory, although a maternal aunt died from consumption. He was never very robust, but enjoyed fair health until 14 months before I saw him, when he caught cold, and he has had a cough at intervals ever since. In the spring of last year his cough became aggravated, and was accompanied for the first time by expectoration, which was "tough and yellow," and on one occasion blood-stained ; and about two months before admission he suffered for a few days from a stabbing pain over the left breast, aggravated on coughing or taking a deep breath. He had lost flesh and strength and colour, was easily tired, and had complained occasionally of night sweats and of palpitation and breathlessness on exertion. In the right infra-clavicular region there was some flattening, defective movement, dulness and crackling râles, which were also present over the upper two-thirds of the back. The expectoration was abundant, muco-purulent, and contained tubercle bacilli in great abundance. There was no fever. He was put upon generous diet with three pints of milk and three ounces of cod-liver oil per day. He also had a subcutaneous injection of 10 minims of a saturated solution of picrotoxin at bedtime and was kept as much as possible in the open air. The night sweats soon disappeared, he felt stronger, and increased in weight, and by Nov. 11th all trace of râles had disappeared in front, but they were still very decided behind. On Nov. 12th, therefore, a course of tuberculin was commenced and is being still continued.

The last report was taken on Jan. 12th, and is as follows: "There is still slight mucous expectoration, about one-eighth of what he had at first, containing tubercle bacilli, though in decreased numbers, but all trace of râles has disappeared and the physical examination of the chest reveals no definite physical signs. Since admission he has gained 1 st. 4½ lb., weighing 8 st. 12½ lb., being 9½ lb. above his normal weight before the commencement of his illness."

But the best class of cases for studying the effects of the tuberculin treatment is that of external tuberculosis, because we can see the results which ensue. One of my resident medical officers (Dr. John Aitken) has kindly at my request tabulated the particulars of 45 consecutive cases admitted into the Western Infirmary of Glasgow from April, 1889, to April, 1899, and without any preconceived opinions. The following is a summary of the results. Of these, 35 were illustrations of lupus vulgaris, seven of scrofuloderma, and three of lupus erythematodes. All were treated with the old tuberculin with the exception of one in which the new (T.R.) tuberculin was used, and the only other treatment consisted of generous diet and from two to three ounces of cod-liver oil daily.

Of the 36 cases of lupus vulgaris 23 were females and 12 were males. The oldest patient on admission was 59 years of age and the youngest 10 years, the average being 23 years. The age of the youngest patient when the disease commenced was seven years and that of the oldest 28 years, the average age at commencement being 13 years. The duration of the disease when the patient was admitted was in one case as low as five months, while in another it had been present for no less than 46 years, the average duration being seven and a half years. In 32 of the 35 cases the face was involved, generally the nose prominently or exclusively, and, in several, other parts of the body or limbs were involved as well. In one case the right arm and neck were attacked alone, in one the left thigh and neck only, and in one the left leg was the part implicated. The duration of the tuberculin treatment varied from seven weeks to six months, but one patient, who was much improved when she left the hospital, could only be induced to remain for four weeks. The average duration of the treatment was four months. In 33 of the 35 cases the result is thus tabulated by Dr. Aitken: Improved, two; much improved, eight; very much improved, seven; almost well, four; well, 12; total, 33. It will thus be observed that improvement was invariable, and the number of cases dismissed well would have been much greater had we been able to induce some of the patients to remain longer under treatment.

Now whether is tuberculin—as far as its therapeutical effect is concerned—to be regarded in the light of a constitutional or a local medication? That it produces constitutional symptoms we know, as witness the fever, the headache, and the sickness which so often follow its administration; but these are injurious rather than otherwise and the less we have of them the better. That it produces marked local symptoms we see in cases of external tuberculosis, for we observe after each injection redness, swelling, serous exudation, and crustation, accompanied by elevation of temperature at the part, and I think it cannot be doubted that it is this inflammatory action which puts the enemy to rout just as an attack of erysipelas of the face often improves, if it does not remove, a tuberculous affection of that part. If this be true then it follows that we must regard tuberculin treatment in the light of a local remedy, but one which does not rectify, but rather intensifies, the constitutional vulnerability. From this it is obvious that, as we aim at permanent results, we must not rest content with injecting tuberculin only but must combine it with general treatment.

Some of my professional brethren who have carried out the tuberculin treatment on a considerable scale—especially in the case of external tuberculosis—agree with me as to the immediately beneficial results of such a course of treatment, but state that after the course is completed there is generally a recrudescence of the malady. Now I freely admit that if patients are treated by means of tuberculin injections alone and then dismissed from hospital to miserable homes, where they are deprived of light, pure air, abundant food, and tonic treatment generally, a recrudescence of the disease is all but certain. For we must never forget that two factors have to be taken into account in dealing with tuberculous disease: (1) the tubercle bacillus; and (2) the soil favourable to its life and development. So that, in order to obtain permanent results, it is obvious that, in addition to the use of tuberculin, means must be taken simultaneously to change the soil upon which the micro-organism flourishes, such as good and abundant nourishment, living as much as possible in the open air, and the use of tonics, cod-liver oil, and other anti-strumous remedies. This combined treatment, if judiciously carried out, has, in my experience, yielded excellent results and I commend it to you with confidence.—*The Lancet.*

OVERWEIGHTING THE CAVALRY MOUNTS.

The war correspondent of the *Daily Express* writing from Thaba N'chu, says:—

"In the whole science of war only one factor remains at a standstill, and that factor is the physical endurance of man and horse.

Until the day dawns when we shall be permitted to spy upon the enemy from an aluminium carriage in the clouds, we shall have to rely solely upon a man and a horse for information.

It has early been decided that frontal attacks are impossible, and under existing circumstances it would appear that flanking movements are equally out of the question. An attacking force has to move round the circumference of a circle, and the distance is too great to be accomplished by the average horse with the weight he now has to bear.

The Government regulation lays down with great precision the list of the accoutrements, with their exact weight. The man has to carry 39lb. 8½oz., and the horse 79lb. 5½oz. This makes no provision for the blanket, which weighs another 3lb. to 4lb.—call it 3lb. 2½oz.—which makes, in all, 122lb., or 8st. 10lb. absolute dead weight.

I take it that the average mounted infantryman weighs about 11st. 5lb. (although the Government list whittles him down to 140lb), and thus, if my figures are correct, the weight upon the horse is no less than 20st.! The hunting man must throw up his hands. Who is there riding such a weight would ever dream of following hounds, even upon the soft and easy downs, mounted on a hunter costing less than £200?

I know well that this difficulty has presented itself scores of times to every cavalry officer, but the only way in which it has been met is by reducing the weight of the impedimenta while still bearing it on the horse's back.

I venture to suggest that there is another method, and that this one is the only possible solution of the problem. I advocate a galloping transport to carry everything with the exception of the rifle, ammunition, water-bottle, and one feed of corn, to weigh with nose-bag 7lb. The saddlery, which at present weighs 40lb., might then be reduced to 20lb., including the rifle bucket. This would give a saving of 55lb. 7½oz., or just upon 4st. The horse would then be burdened with only 16st., and more than that, I venture to contend, he can-

not carry and be serviceable. The extra kit might then be carried after the squadron in very strong and light two-wheeled carts, drawn by two horses, and fashioned in such a way as to be capable of being dragged wherever field artillery can go, and that means practically anywhere.

I have no means here of ascertaining what weight two horses should be able to draw under the circumstances, but presume that 1,250lb. would not be too much. Such a load would admit of the kit of twenty men plus 150lb. for the driver. Five per cent. of the establishment would thus be turned into drivers, and ten per cent. more horses required as an original outlay; but under such circumstances we should not hear of the awful mortality among the chargers and of the terrible strain on the remount department.

I am constrained to write upon this topic not merely as an opportunist in search of copy, for I have seen what those in England hardly even hear about—namely, thousands and thousands of suffering horses. Horses dying, horses dead. Horses with girth galls and raw backs, from which the flies arise in clouds.

"A GRATEFUL STUDENT."

The following letter is published in *The North British Agriculturist*:

"25th May, 1900.

DEAR PROFESSOR WILLIAMS,—Remembering the many kindnesses which I have received from you, and also the fact that to you I owe the present position which I now occupy, I would like in some way to express my gratitude. Therefore, if you will kindly allow me, I will give a prize of £25 annually for the next four years, to be competed for by students of the New Veterinary College, Edinburgh. I would suggest that the prize should be given to the student who obtains the highest aggregate number of marks in his A B C and D examinations of the Royal College of Veterinary Surgeons; also that the student must have been regular in his attendance, and of good behaviour during the time he has attended the New Veterinary College.

The first prize to be awarded after the May examination 1901. And I may say that, should I still be living in the land of prosperity at the expiration of the four years, and the giving of the prizes prove to be the success which I sincerely hope they will be, I shall do my best to continue giving the prize annually.

If there is any other scheme that you think would be more advantageous as a stimulus to the student or the welfare of the profession, I shall be very pleased to hear from you on the subject.

In giving these prizes I wish to be "*anonymous*."—With every good wish, believe me, ever yours faithfully,

"AN OLD STUDENT."

THE USE OF HORSEFLESH AS A FOOD.

The gradually extending use of horseflesh as an article of daily consumption in Germany and the circumstance that many of our brave troops have been compelled to use it as a diet more or less completely replacing beef and mutton for many weeks together in Kimberley and Mafeking make opportune an article upon its effects by the well-known physiologist Ed. Pflüger which is published in the May number of his *Archiv für Physiologie*. Professor Pflüger's experiments were instituted on dogs to determine the metabolism of the body and the capability of obtaining a full amount of work out of the animal on a diet of pure, or nearly pure, albumin. With this object the well-boiled muscles of fish were given, which the animal ate with relish, but which, from the difficulty of freeing it from bones, had to be discontinued, vomiting and staining of the fæces with blood resulting from its use. Horseflesh next suggested itself as representing albumin with an extraordinarily small proportion of fat, yielding, in fact, only about 1 per cent. of ether-extract. This, carefully cleansed from tendon and any apparent adipose tissue, was given to a dog after being passed through a mincer either in the fresh state or after sterilisation and division into equal blocks which kept well. The immediate effects were that diarrhœa set in, which continued as long as this kind of meat was supplied and, in addition, under nearly similar conditions of work, the daily loss of nitrogen by the bowels was found to be doubled, or more than doubled. Professor Pflüger then made inquiries of the keepers of the Zoological Gardens at Cologne, and found that it was generally known that the use of horseflesh caused diarrhœa in all predatory animals, on which account it had been very generally given up and the flesh of cows, which caused no disturbance of the bowels, had been substituted for it. He found, too, that the same effects followed its use whether it was eaten raw or had been first boiled. Cats were less disturbed than dogs, though still to a noticeable extent. Investigations were now undertaken to determine whether the effects observed were due to the want of fat or to the presence of the large quantity of glycogen which horseflesh is known to contain. Therefore mutton fat from the region of the kidneys in the proportion of 750 grains to each 4lb. 4oz. of the meat was added with immediate good effects, for the dog at once began to pass well-formed fæces. The same result followed the admixture of ox fat in like proportion, but pig's fat was much less effective in arresting the diarrhœa. The question arose whether the diarrhœa resulted from the mere poverty of fat in horseflesh or from the presence of some poisonous constituent in it to which fat proved an antidote. Further experiments in which horse-fat was mingled with ox-flesh and administered to the animal as a diet caused no diarrhœa, hence it was concluded that there was no poisonous constituent in horseflesh. Experiments made with starch in the form of rice pap reduced but did not prevent the diarrhœa caused by the exclusive use of horseflesh. When the diet of horseflesh was continued for many months the addition of even considerable proportions of rice-pap and fat had but little effect in controlling the diarrhœa. Next an endeavour was made to determine whether the toxic agent was contained in the water in which the finely divided meat had been boiled. This was separated by passing through a sieve, but the addition of this fluid had no injurious effect whilst the meat-pap left on the sieve produced diarrhœa. In other words what the French would call the bouilli was poisonous whilst the bouillon was not. The boiled meat was now subjected to the action of alcohol, and experiments were made with both the material that was precipitated by alcohol and with that which was obtained by evaporating the alcohol to dryness. The results showed that the poison was not contained in the precipitate caused by alcohol but in the material left on the evaporation of the alcohol. This material was again treated with ether. The ether dissolved part of the alcoholic extract and left a remainder. Experiment again showed that the toxic agent was contained in the material dissolved by the ether but its action had become considerably enfeebled, probably owing to its decomposition. A quantitative analysis of the ether extract seemed to show that it was composed of about three-fourths of lecithin and one-fourth of neutral fat and cholesterin. This certainly does not afford any information in regard to the exact nature of the toxin but it indicates the path for further research and leads Professor Pflüger to suspect that it may consist of neurin or some modification of that

poisonous agent. He concludes with some suggestions for cooks in beleagured garrisons who are reduced to horseflesh as food, which coming from the pen of one of the most distinguished living physiologists, deserve consideration. In one mode of dressing the horseflesh is converted into a pulp and for every two pounds about three-quarters of an ounce of ox fat or mutton fat taken from the region of the kidneys is served up with a sauce of meal as a hash. Another is to cut it into collops, boil it in water, throw away the broth, and serve the meat with a fat sauce. Beer, wine, tea, or coffee may be taken with it. A third is to convert it into a pulp, add a tenth of its weight of rice and a fortieth of its weight of fat, and cook by steaming; or, lastly, it may be beaten up with plenty of fat and eaten with an oily sauce.—*The Lancet.*

[This toxic action of horseflesh is new to us.—Ed.]

The Preservation of Meat.

Buenos Ayres, June 16.

A new invention for the preservation of freshly killed meat without resorting to a very low temperature or subjecting the meat to any preparation whatever has been tried here, and its success was proved to-day. An ox and two sheep were killed on Mafeking day and placed in a chamber, the meat being sealed by the Minister of Agriculture. The same Minister, accompanied by Major Flintoff, of the British Remount Commission, representatives of Messrs. Houlder Brothers, of London, and Messrs. Parker and Fraser, of Liverpool, and many others visited the chamber to-day and found the meat perfectly fresh.

Owing to the satisfactory result of the trial a shipment of meat will be despatched early in July. If the shipment is successful, England will be supplied with fresh meat at low prices.

The inventor is a German engineer, but the patent rights have been acquired by English people.—*The Times.*

Horse Slaughtering.

The Public Control Committee reported that the Council had ordered the slaughter of a large number of glandered horses, which were killed by Messrs. Harrison Barber, and Co. (Limited), who were the only licensed horse-slaughterers in the County of London. An experiment was made a few months back with an instrument known as the "Humane Killer," which consists of a rifled barrel, one end of which was held against the upper part of the forehead of the animal between the ears, while the other end was chambered to receive a small cartridge with a steel-pointed bullet, which was discharged by being struck with a mallet by the operator. This mode of slaughtering had been found to be greatly superior to the old, especially as regards the small amount of suffering endured by the animals. In view of these circumstances, they requested Messrs. Harrison, Barber, and Co. to discontinue the use of the pole-axe in London, and in future to kill only by means of the instrument described A communication had been received to the effect that the company had issued peremptory orders to all their depôts that in future all animals were to be slaughtered by means of the "Humane Killers." The report was received.—*The Times.*

Cape Colony Cattle Regulations.

The Board of Agriculture has received a proclamation issued by the Governor of Cape Colony proclaiming regulations for the examination and quarantine for tuberculosis of cattle imported into the Colony by sea. These regulations, which are to come into force on the 1st of August, provide that cattle which are accompanied by a certificate from a qualified veterinary surgeon of the country from which they have been brought, stating that the animals before being embarked had been submitted to the tuberculin test, and had not given any reaction indicative of tuberculosis, may be landed at any port or place in the Colony if they are found to be free from any contagious or infectious disease. In the absence of a satisfactory certificate the imported cattle must be removed to an appointed quarantine station, where they will be subjected to the tuberculin test by a Government veterinary surgeon, and, in the event of the test indicating the existence of tuberculosis, the animals must be destroyed, the expenses of inspection, quarantine, destruction, and otherwise being charged to the owner. These regulations will not apply to cattle imported solely for immediate slaughter for food, but such animals must be inspected before being landed by the Government officer, and be declared by him to be fit for human food.—*Morning Post.*

Railway Companies and Dogs.

The Kennel Club are sending out to the principal railway companies a circular proposing an improved method of carrying dogs by rail. This would necessitate the use of boxes or kennels, which could be placed side by side at the end of the guard's van or other vehicle, and also tier upon tier. The boxes would be placed at the disposal of the public in the same manner as horse boxes—that is to say, they would be kept at certain stations, and ordered, when wanted, as horse boxes are. For the purpose of compensating the railways for their extra trouble and outlay, it is proposed that a fixed extra fee should be charged in addition to the ordinary railway fare for each dog. After each journey the boxes would be disinfected. It is thought that by adopting some such plan as this the risk of contagion during transit will be very materially lessened. Although difficult to prove, it is morally certain, the Club say, that whole kennels of valuable dogs have been destroyed through infection contracted whilst in transit, and thus imported into the kennel. These suggestions are the outcome of deliberations of members of the Kennel Club Committee who have had this subject under their notice for a considerable time. —*The Times.*

ZOOLOGICAL WONDER.—A SHE MULE GIVES BIRTH.

Notice to Directors of Scientific Collections, Circus Proprietors, and others.

The undersigned begs to offer for SALE, in good sound condition, a SHE MULE with HE MULE FOAL at foot, born on March 4th of the present year.

The foal is of good symmetrical figure, specially fine breed, white face, creamy colour, and good paces.

The birth of this phenomenon is attested by several witnesses, and their testimony ratified and certificated by the local authorities according to the documents which are at the disposition of interested parties.

Address Rodolfo Leon y Leon, Piura, Peru; or B.184, The Times Office, E.C. *The Times.*

THANKS TO ELECTORS.

To the Fellows and Members of the Royal College of Veterinary Surgeons.

Gentlemen,—I desire to thank most heartily all those who have been good enough to give me their support, for the honour they have done me in my re-election as a member of Council.—Faithfully yours,

Geo. Wartnaby.

Burton-on-Trent.

ARMY VETERINARY DEPARTMENT.

General of Communications reports following discharged to duty from hospital, week ending June 3.
ARMY VETERINARY DEPARTMENT.—Lt.-Col. Rayment.

PRETORIA, June 18.

The following officers who were prisoners at Pretoria were recovered on June 6:
ARMY VETERINARY DEPARTMENT.—Vet.-Lieut. F. H. Shore.

Distribution of V.O. and V.S. in Natal.

V.-Maj. C. Rutherford, Newcastle.
V.-Capt. Raymond, R. W., Maritzburg.
V.-Lt. Cochrane, R. C., Newcastle.
V.-Lts. Houston, Coley, Harris, Tatam, and
C.V.S. Towers, Knott, Tate, Jolliffe and Jowett, Ladysmith.
C.V.S. Knapp, Tustin, Steele, Verney, Powell, East of Ingogo.
V.-Capt. Larnder, C.V.S. Matthews and Walker, Ingogo.
V.-Capt. Wilson, C.V.S. Evershed, Cockburn, Elandslaagte, Sunday's River, Modder Spruit.
V.-Lt. Bartlett, C.V.S. Malone, Glencoe.
C.V.S. Russell, Colenso.
V.-Lts. Williams, Durrant, C.V.S. Quinlan, Carless; Weston—Mooi River.
C.V.S. Lowe, Maritzburg.

Bloemfontein.

V.-Maj. Crow arrived Bloemfontein. May 20.
C.V.S. Jackson, A. F. S., posted to Stellenbosch. May 21.
C.V.S. Nichol ordered to Bloemfontein. May 22.

C.V.S. R. C. Plunkett left Tilbury Docks on Tuesday, 19th, in ss. Saint Andrew.

V.-LT. DUNLOP SMITH AT MAFEKING.

Vet.-Lieut. Dunlop Smith was with Col. Hore and some twenty officers and men who were surrounded and made prisoners in the British South African Police Fort by the party under Commandant Eloff, who, later in the day, surrendered in turn to Col. Hore and his party. In a description of "The last day of the siege of Mafeking," *The Times* correspondent writes:—"As the day wore on, many casualties occurred among the Boers in the fort, and the absence of efficient medical aid among his men prompted Commandant Eloff to appeal to us for assistance, whereupon Veterinary-Lieutenant Dunlop Smith, Farrier Corporal Nichols, and Forbes, the regimental canteen-keeper, offered and rendered valuable services to the wounded Boers, running the gauntlet of our own fire in the cause of a common humanity."

Lieutenant Percy Shaw, who died of enteric the other day at Bloemfontein, furnishes a remarkable instance of the hereditary instinct for soldiering. His father and grandfather both held the Queen's Commission, but he himself took up the more peacable *rôle* of veterinary surgeon. When the war broke out, however, he joined the Army on special service, going out with the 3rd Royal Munster Fusiliers. He did splendid work as a transport special officer under Ian Hamilton, but if he cared much for his horses he cared little for himself, and overwork and exposure made him an easy victim to fever. His father, Colonel F. G. Shaw, J.P., resides at Heathburn Hall, county Cork.—*Saturday Herald, Dublin.*

OBITUARY.

THOS. WILLIAMS, M.R.C.V.S., Bethesda, Carnarvon.
Graduated, New Edin., Dec., 1893.
JOHN FREEMAN, M.R.C.V.S., Hull.
Lond., April, 1863.
T. F. ALSTON, M.R.C.V.S., Tollcross, Edinburgh.
Glas., April, 1882.
R. D. DAVIDSON, M.R.C.V.S., Cogle, Caithness.
New Edin., May, 1889.
W. IRONSIDE, M.R.C.V.S., Cluny, Aberdeenshire.
Glas., April, 1870.
G. H. WHITE, M.R.C.V.S., Walsall.
New Edin., July, 1898.
THOS. HATTON, M.R.C.V.S., Stockwell, London, S.W.
Lond., June, 1843.
T. J. CAMPSALL, M.R.C.V.S., Rotherham.
Lond., April, 1867.
E. THOMAS, M.R.C.V.S., Carno, Montgomeryshire.
Edin., April, 1875.

CORRESPONDENCE.

THE COUNCIL ELECTION.

Sir,
As one who has taken an interest in our Council and election matters for many years I feel annoyed at the way I have been generally overlooked, and at last election more particularly. I have been at the same address for over 15 years and have generally received copies of candidates' election addresses, when they have condescended to let their views be known. I have also received voting papers, generally on the day after they should have been sent in, these I have always filled up and returned at once, although the stated time had expired. This year I know nothing about the election except what I have gleaned from *The Veterinary Record*, which, by the way, is always fresh and up to date. I have had no annual report and no voting paper sent me. If such treatment of us country vets. is general I do not wonder at the apathy which you so justly complain of at the annual meetings.—I am, yours etc.,
J. M IRONSIDE, M.R.C.V.S.
Nairn, June 16.

ANOTHER GRIEVANCE.

Sir,
I act on behalf of the town authority here, and when I receive notice that there is any swine amiss I leave a circular on the owner, which is the order of the Board of Agriculture. The circular in question declares the swine to be affected with swine fever, although the complaint might be Foot-and-Mouth disease or balanitis. The Board then investigates the matter and in 90 per cent of the cases finds there is no swine fever; the Board then writes to those interested (except myself) stating that the place which *I declared infected with swine fever*, is not so, and that swine fever does not exist. What sort of a reputation will this kind of proceeding gain a V.S.? Are veterinary surgeons in the 20th century going to shut their eyes and allow their interests and work in the suppression of disease to be ruined by the Board of Agriculture? I hope not.
V. S.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Messrs. J. M. Ironside, W. Beddard. "V.S."
Interim Report Disease of Animals Act. Quarterly Return of M.O.H. Manchester, Report on Glanders, by Gen. Manager Glasgow Tram. Co., *Saturday Herald* (Dublin).